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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,034	07/24/2003	Michael L. Crabtree	O02-075A	3716
29293	7590	11/23/2005	EXAMINER	
FREUDENBERG-NOK GENERAL PARTNERSHIP LEGAL DEPARTMENT 47690 EAST ANCHOR COURT PLYMOUTH, MI 48170-2455			SY, MARIANO ONG	
			ART UNIT	PAPER NUMBER
			3683	

DATE MAILED: 11/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/627,034

Applicant(s)

CRABTREE, MICHAEL L.

Examiner

Mariano Sy

Art Unit

3683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 22, 2005 has been entered.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Warmuth, II et al. (US 4,741,517).

Re-claim 1 Warmuth, II et al. disclosed, as shown in fig. 1-3, an air spring sleeve comprising: an elastomer body 18; a first cord 29 embedded in the elastomer body, the first cord wound with a first helix angle with respect to a sleeve centerline; a second cord 31 embedded in the elastomer body, the second cord wound with a second helix angle with respect to a sleeve centerline, said first and second cords being made from a material selected from a group consisting of polyester, nylon or combinations thereof; the first helix angle and the second helix angle describe a differential helix angle; the

first cord disposed radially inward of the second cord; the first helix angle is greater than the second helix angle.

Re-claim 2 Warmuth, II et al. disclosed, as shown in fig. 1-3, wherein the differential helix angle is in the range of approximately 0 to 5 degrees.

Re-claim 3 Warmuth, II et al. disclosed, as shown in fig. 1-3, wherein the differential helix angle is in the range of approximately 0 to 2.5 degrees.

Re-claim 12 Warmuth, II et al. disclosed, as shown in fig. 1-3, wherein the first cord has a structure similar to the structure of the second cord.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirtreiter et al. (US 3,897,941) in view of Warmuth, II et al. '517 and in view of Crabtree (US 4,763,883).

Re-claims 1 and 12 Hirtreiter et al. disclosed, as shown in fig. 11, an air spring sleeve comprising: an elastomer body 1; a first cord 17 embedded in the elastomer body, the first cord wound with a first helix angle with respect a sleeve centerline; a second cord 17 embedded elastomer body, second cord wound with a second helix angle with respect a sleeve centerline; first helix angle and second helix

angle describe a differential helix angle (see col. 8 lines 1-5); first cord is disposed inward of the second cord; the first helix angle greater than the second helix angle; and wherein the first cord has a structure similar to the structure of the second cord (see col. 8 line 8, note that either the inner or the outer cord may have a greater helix angle according to the claimed combination); wherein the cords are made of flexible metals.

However Hirtreiter et al. failed to disclose the cords are made from a material selected from a group consisting of aramid, nylon, polyester, textiles or combinations thereof.

Warmuth, II et al. teaches the use of cords being made from a material selected from a group consisting of polyester, nylon or steel wire, see col. 5, lines 35-37.

Crabtree teaches the use of cords made from a material selected from a group consisting of aramid, nylon, rayon, polyester, fiberglass, cotton or the like.

It would have been obvious to one of ordinary skill in the art to have made the cords selected from a group consisting of polyester, nylon or steel wire into the air spring sleeve of Hirtreiter et al., in view of the teachings of Warmuth, II et al. and Crabtree, as an obvious matter of design choice of rigidity depending upon the type of application and size of the air spring sleeve.

Re-claims 2 and 3 Hirtreiter et al. disclose general ranges of the helix angle of the cords. Note that the claimed ranges are within the general ranges disclosed by Hirtreiter et al. in the first ten lines of column 8. Further note that Hirtreiter et al. discloses different cord angles in the context of increasing the rigidity of the air

spring (see col. 2 lines 54-58).

Accordingly, it would have been obvious to one of ordinary skill in the art to which the invention pertains at the time the invention was made to have optimized the helix angles according to the ranges of claims 2 and 3 in order to attain greater air spring rigidity, see MPEP 2144.05.II. A and B.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariano Sy whose telephone number is 571-272-7126. The examiner can normally be reached on Mon.-Fri. from 8:30 A.M. to 2:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James McClellan, can be reached on 571-272-6786. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 M. Sy

November 15, 2005

  
**JAMES MCCLELLAN**  
**PRIMARY EXAMINER**

11/18/05